Jerry Zhu

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Education

Stony Brook University Stony Brook, NY
Bachelor of Science, Computer Science *August 2022 - May 2026*

- **Coursework**: Discrete Mathematics, Linear Algebra, Data Structures and Algorithms, Probability and Statistics
- **Extracurriculars**: Stony Brook Game Developers, Stony Brook Computing Society

Technical Skills

Languages: C++, C, C#, GLSL, Common Lisp, Scheme, Java, Python, JavaScript, TypeScript
Libraries & Technologies: SDL2, Win32 API, OpenGL & WebGL, Unity, Godot, MonoGame, Emscripten
Developer Tools: Git, Mercurial, Visual Studio, GDB, Valgrind, RenderDoc, Bash, Trello, Linux

Projects

Soul Walker | *C#, Unity* April 2023

- Programmed a **configurable actor controller** for all entities including the player and 4 enemy types
- Developed a **raycast based movement system** with **sloped surface support**
- Designed a 'body possession' mechanic to follow the given jam theme 'duality'

CrankLang | *C++* March 2023 - May 2023

- Implemented a statically typed language with a **handwritten recursive descent parser** and compiler in **C++**
- Language supports **user-defined** record types, unions, enumerations, and **multiple file inclusion**
- Compiles programs from an **abstract syntax tree** into **C++** code

Legends - RPG | *C, SDL2, Emscripten* June 2022 - Present

- Built a from-scratch game engine with a **level editor** and **custom scripting language**
- Utilized **custom memory allocators** and **object pools** to **eliminate memory allocations at runtime**
- Implemented a **SIMD** optimized **multithreaded software renderer** improving framerate by 200%
- Programmed a **postprocessing pipeline** that supports **box-filter based bloom**
- Designed a **delta compression based save system** and **backwards compatible file formats**
- Implemented a **particle system**, **dialogue system**, and **BFS based pathfinding** for entities

Ascension - Action Platformer Prototype | *C, SDL2* February 2022 - March 2022

- Implemented a **custom platformer physics engine** with support for **slopes** and **fixed timestep updates**
- Developed a **particle system** with support for **physics interactions**
- Implemented Hollow Knight inspired gameplay mechanics such as 'pogo-bouncing', wall jumping and dashing

2D Game Framework | *C, OpenGL, SDL2, Emscripten* July 2021 - October 2021

- Coded a **plugin system** through dynamic link libraries (DLLs) and a **custom build system**
- Implemented a **sprite batcher**, screen-based **sprite culling**, and custom **shader support**
- Designed a **glyph-cache** supporting **arbitrary Unicode text** with a fixed memory footprint
- Implemented development features such as a **Quake style debug console** and **hot reloadable assets**

Leadership

Software Development Team Lead February 2021 - September 2022
The Environment Project *Queens, NY*

- Led the development of Recyclopedia, a wiki web application with a **team of 4**
- Maintained and redesigned the organization **WordPress** website which reached **10K visitors**
- Authored the event page for the Flushing Meadows Corona Park clean-up which resulted in **111 participants**
- Managed collaboration through **GitHub** pull requests, **Trello**, and pair-programming meetings on **Zoom**